

Remarks/Arguments

In an Office Action dated July 25, 2007, claims 1, 2, 12, 22, 23, 41, 42 and 53 were rejected under § 102 as anticipated by Taylor (USP 6,823,349); claims 3-6, 24-27 and 43-46 were rejected under § 103 as being unpatentable over Taylor in view of Banks (US 2005/0018619); claims 16, 17, 36, 57, and 58 were rejected under § 103 as being unpatentable over Taylor in view of Ofek (USP 5,901,327) and claims 7-11, 13-15, 18-21, 28-35, 37-40, 47-52, 54-56 and 59-61 were allowable. Applicants request reconsideration in view of the remarks below.

Section 102 Rejections

Claim 1

Claim 1 was rejected over Taylor. Applicants respectfully traverse the rejection.

The Office Action addressed the first element as follows:

receiving a first message (receiving a write request operation) from a commit master
(from a primary image site, see abstract, col. 2, lines 62-67, col. 3, lines 1-9);

From this it appears that the Office Action is equating the primary image site as being the commit master. Applicants traverse this conclusion. The language from Taylor that discusses sending the write request is at Col. 2, line 65 to col. 3, line 2, which appear below.

65 one secondary image. In accordance with the method, a write request is received from a host computer at a primary image site. A write operation is conducted on the primary image at the primary image site, and attempted on at least one secondary image at at least one secondary image site. If

Applicants submit that it is clear that the cited portion of Taylor indicates that the write request is “received . . . at a primary image site” “from a host computer.” As a result, the correspondence done by the Office Action is flawed from the beginning. The Taylor

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reference specifically states that the write request is from a host computer, not the primary image site as stated in the Office Action. The primary image site is what receives the write request.

Alternatively the language could be interpreted to mean that the write request is received by some unspecified entity “from a host computer at a primary image site.” The write request would be received by a primary storage unit 23 as described later in the Taylor patent. Applicants believe that the primary storage unit 23 is equivalent to the primary image site in the quoted language but even under this alternate interpretation it is clear that the write request is from the host computer, not the primary image site as alleged in the Office Action.

Applicants here also note that the claim requires receiving “a first message.”

The Office Action next addresses the final element of claim 1 as follows:

resending the first message to each of a specified one or more devices (resynchronizing the write image operation to the secondary storage unit once the primary storage unit is operational, col. 6, lines 17-41) if the first message or a prior message from the commit master includes update data (if the write request operation from the primary storage unit includes update portions of the secondary images identified in the write intent log, col. 6, lines 17-41), else aborting the update operation (only those portions of the secondary images identified in the write intent log needs to be written/updated in the write operation, col. 6, lines 17-41).

If the commit master in the first element was intended to be the primary storage unit, even though this is contradictory to the language of Taylor as noted above, the correspondence in this last element is still improper. The Office Action correspondence appears to have the primary storage unit sending the update portions to the secondary storage unit. But the prior element in claim 1 requires that the commit master is lost. Thus the primary storage unit could not resend the updates as indicated in the Office Action as it has been lost. This just clarifies that the primary storage unit cannot be the commit master as apparently indicated in the rejection of the first element of claim 1 and reinforces Applicants assertion that the commit master must be the host computer.

Along those same lines, the Office Action appears to be defining resending as the resynchronization operation from the primary storage unit to the secondary storage unit and then the first message as the update portions identified by the write intent log. However, those are the same operation. Reviewing Taylor, operations based on the write intent log are the resynchronizing operations themselves, so the Office Action appears to be equating resending the first message with the actual first message itself. This clearly is improper.

If the Office Action is just using the reference to the update portions as indicated by the write intent log to show that the first message contained update data and then the resynchronization operation is the resending, the rejection is still improper. Applicants request attention to the claim requirement in the final element of claim 1 which starts “resending the first message.” As argued above, to be proper the first message must be defined as the write request from the host computer. This message is not resent from the primary storage unit in Taylor in resynchronization operations. Taylor, col. 6, lines 33-37 are most relevant.

The primary storage unit then resynchronizes all of the secondary images to the primary image by updating only those portions of the secondary images identified in the write intent log for updating from the primary image, preferably by copying the corresponding image blocks from the primary image to the secondary storage units. If a failure to

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First, if only a portion of the data needs to be resynchronized, Taylor states that only those portions are updated. This is clearly not equivalent to resending the first message as it by definition is only a portion. Then consider the case of having to synchronize all of the data from a write request. More detail on this operation is provided at Taylor, col. 19, lines 21-30.

replicated write intent log. Specifically, rather than copying the entire primary image to each of the secondary storage units, the remote mirroring logic determines any portions of the secondary images that may be unsynchronized based upon the blocks in the primary image identified by the ²⁵ bitmap in the write intent log as possibly having write entries, and then resynchronizes only those portions of the secondary images that may be unsynchronized, preferably by copying only those image blocks that may be unsynchronized. ³⁰

The mechanism used to resynchronize after a failure using the write intent log is entirely different from receiving the original write request, so it is improper to equate this different process as “resending the first message” as required in the claim.

The Office Action closes with analogizing aborting the update operation with writing only those portions that need to be written. This is an improper interpretation. A proper interpretation would be that the primary storage unit is just completing the first write request, not aborting it. Aborting the operation would arguably require actually removing any data that had been written to the secondary storage unit, not providing the rest of what had not been written. And it is noted, as described above, that the mechanism is entirely different from the normal write request operations when the write intent log must be used. Therefore this portion of the Office Action is also erroneous, yet a further reason the rejection is improper.

Applicants thus submit that the rejection of claim 1 is improper for many reasons and should be withdrawn.

Claim 22

The arguments of claim 1 apply equally to claim 22 and are incorporated here so that claim 22 is allowable.

Claim 41

The arguments provided for claim 1 and 22 apply equally to claim 41 so that it is allowable.

Further, Applicants submit that combining what clearly is identified in Taylor as a switch 17 or 47 with what is clearly identified as a storage system 23 or 35 is improper. Taylor clearly considers the two items to be separate and they cannot be hindsight combined to make a rejection without some indication to controvert Taylor's clear indication that they are separate items.

In addition, the Office Action has inconsistently corresponded elements in making the rejection. The first switch has been equated to be the switch 17 and the primary storage unit 23. The second switch has been equated to be the switch 47 and the secondary storage unit 35. Claim 41 specifically requires the second switch receiving the first message from the first switch. The second switch is also required to perform the element of resending the first message. Yet all of the elements of Taylor that are corresponded in the rejection to the resending element of claim 41 are in the primary storage unit, the first switch in the rejection. Thus the Office Action has been inconsistent in the rejection, citing elements in the first switch as doing actions required by the second switch. This is a further reason the rejection is improper and claim 41 is allowable.

Section 103 Rejections

Claims 3-6, 24-27 and 43-46

The Office Action rejected claims 3-6, 24-27 and 43-46 under § 103 over Taylor in view of Banks. Applicants respectfully submit that Banks is not a proper reference to be used in forming a § 103(a) rejection under the terms of § 103(c)(1).

Section 103(c)(1) states:

(c)(1) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Applicants state that such is the case here and provide the following statement to remove the Banks reference.

Statement under § 103(c)(1)

The instant application, Serial No. 10/056,823, and U.S. Patent Application Serial No. 10/853,321, which is Pub. No. US 2005/0018619, were, at the time the invention of application Serial No. 10/056,823 was made, owned by or subject to an obligation of assignment to Brocade Communications Systems, Inc.

Further evidence of this common ownership is evidenced by the assignment records of the two applications, the present case at Reel/Frame 012851/395 and Serial No. 10/853,321 at Reel/Frame 010578/0657 and 010818/0758, the assignment records for its parent case Serial No. 09/426,567, now Patent No. 6,765,919, which indicate ownership in both cases by Brocade Communications Systems, Inc.

Claims 3-6, 24-27 and 43-46

The Office Action rejected claims 16-17, 36 and 57-58 under § 103 over Taylor in view of Ofek. Applicants respectfully traverse the rejections.

Each of the rejected claims requires detecting that a second message has not been received from the commit master within a specified time. Ofek was cited as supplying this teaching admitted as missing from Taylor. However, the cited portions of Ofek only indicate a failure is determined if an acknowledgement to a previously sent message is not received timely. The claims require timing from the first message to the second message from the commit master. Ofek is timing the period from when the device itself has sent a message while the claims require timing the period between two messages from a remote source. These two are not equivalent, so that the rejection based on Ofek is improper.

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Conclusion

Based on the above remarks Applicants respectfully submit that all of the present claims are allowable. Reconsideration is respectfully requested.

Respectfully submitted,

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